Claim Listing

1. (Withdrawn) A control methodology for regulating the power input and output of inertial energy storage devices, including but not limited to flywheels, such control methodology utilizing a continuously variable transmission (CVT) and comprising control of the CVT speed ratio based on feedback of the CVT output force or torque.

2. (Withdrawn) A control methodology for regulating the power input and output of inertial energy storage devices, including but not limited to flywheels, as in claim 1, in which the CVT ratio is equal to the time integral of an error signal derived from operator input and feedback of a signal proportional to CVT output torque.

3. (Withdrawn) A control methodology for regulating the power input and output of inertial energy storage devices, including but not limited to flywheels, as in claim 1, in which the CVT ratio is equal to a ratio - measured speed of the machinery divided by measured speed of the inertial energy storage device – plus an error signal derived from operator input and feedback of a signal proportional to CVT output torque.

4. (Previously presented) A wheeled vehicle which includes: a flywheel for energy storage, a continuously variable transmission (CVT) coupled by a shaft to and driven by said flywheel, at least one wheel of the vehicle coupled by a shaft to and driven by said CVT, and a feedback system for controlling the speed ratio of said CVT based on feedback of CVT output torque.

5. (Previously presented) The wheeled vehicle according to claim 4, wherein: a fixed ratio transmission is coupled in series between the flywheel and the continuously variable transmission (CVT), and is of a fixed ratio such that the flywheel and CVT operate within the specified design ranges for the flywheel and CVT respectively.

6. (Previously presented) The wheeled vehicle according to claim 4, wherein: a clutch with corresponding clutch actuation means is coupled between the flywheel and the continuously variable transmission (CVT) or between the CVT and the driven wheel(s) of said vehicle, said clutch actuation means controlled by either manual or automatic action to completely disengage said flywheel from said driven wheel(s) when said wheeled vehicle is either at rest or the desired speed is lower than the speed corresponding to the lowest CVT ratio.

7. (Previously presented) The wheeled vehicle according to claim 4, wherein: a prime mover is coupled to the flywheel and is controlled to increase the rotational speed of the flywheel up to the maximum design rotational speed of said flywheel.

8. (Previously presented) A wheeled vehicle having a propulsion system based on the use of inertial energy storage and including one or more driven wheels, comprising:

a) a flywheel for storing inertial energy;

b) a continuously variable transmission (CVT) having a speed ratio coupled for receiving input torque and rotational propulsive energy from said flywheel and for supplying output torque and rotational propulsive energy to said one or more driven wheels; and

c) a feedback system for controlling the speed ratio of said CVT as a function of said CVT output torque.

9. (Previously presented) The vehicle of claim 8, wherein:

said feedback system for controlling the speed ratio of said CVT controls said CVT as a function of an error signal equal to the difference between the CVT output torque and an operator error signal.

10. (Previously presented) The vehicle of claim 8, wherein:

said feedback system for controlling the speed ratio of said CVT controls said CVT as a function of a time integral of an error signal equal to the difference between the CVT output torque and an operator error signal.

11. (Previously presented) The vehicle of claim 8, further including:

a fixed ratio transmission connecting said flywheel to said CVT for interfacing said flywheel with said CVT as a function of their operational design ranges.

12. (Previously presented) The vehicle of claim 8, further including:

a clutch connecting said flywheel to said CVT for disengaging said flywheel from said CVT when said vehicle is at rest.

13. (Previously presented) The vehicle of claim 8, further including:

a prime mover for supplying energy to said flywheel by increasing the rotational speed and inertial energy of said flywheel.

14. (Previously presented) A method of controlling the propulsion of a wheeled vehicle having a propulsion system based on the use of inertial energy storage and including a flywheel, a continuously variable transmission (CVT) coupled to said flywheel and one or more driven wheels coupled to said CVT, comprising the steps of:

a) generating a CVT speed ratio control signal as a function of CVT output torque and operator input; and

b) feeding back said CVT speed ratio control signal to said CVT for controlling the speed ratio of said CVT.

15. (Previously presented) The method of claim 14, wherein:

said CVT speed ratio control signal comprises an error signal equal to the difference between the CVT output torque and an operator error signal.

16. (Previously presented) The vehicle of claim 15, wherein:

said CVT speed ratio control signal comprises a time integral of said error signal equal to the difference between the CVT output torque and an operator error signal.